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mentioned is about an eighth of a mile east of this. The sandstone dips about S. 10° E., 30°.

Study of this region forced me to believe in the correctness of Mr. Hall's conclusion that the hydromica of the South Valley Hill overlies the limestone, and further, that the sandstone and limestone of Cream Valley are the Potsdam and limestone of the Chester Valley rising on the southeasterly leg of the synclinal which includes the hydromica. But if this sandstone north of Paoli is Potsdam, occurring as it does between the limestone and the hydromica, this theory is untenable and the theory of Prof. Rogers and of Dr. Frazer that the hydromica is older than the Potsdam must be correct. It is my wish to study this further but I desire to record the observation at once while the exposure is favorable for study, that others may have the opportunity to examine it.

FEBRUARY 17.

The President, Dr. LEIDY, in the chair.

A paper entitled, "Notes on some little-known American fossil Tortoises," by Dr. G. Baur, was presented for publication.

On the Age of the Peace Creek Beds, Florida.—The following communication from MR. WM. H. DALL was read by the President:—

"I am just back from Florida and have been exploring Peace Creek where the fossil bones are found and have determined the stratigraphical relation of the beds they come out of. I thought you would like to know about it. They are under Marine Pliocene beds corresponding to part of the Caloosahatchie beds and overlie or are mixed with older Pliocene phosphatized rock which has many of the Caloosahatchie shells in it but which on the whole seems rather older. The bones then,—that is those from Peace Creek, which are all derived from one original stratum not over two feet thick,—are older Pliocene beyond any question. I found actually in the bed mastodon, manatee, horse, glyptodon and big turtle with others I did not recognize. I did not try to collect much, as my visit was hurried. I saw also beautiful Pliocene rock from Wakulla Co., with bones actually in it, as well as finely preserved casts of Pliocene shells. I think the big *Elephas columbi* is older than the forms above mentioned, at all events sections of its tusks are found right on top of the Miocene near Bartow and their state of fossilization is much more complete than in the case of the bones from the clay or Peace Creek beds."

On a probable new species of Bipalium.—DR. BENJAMIN SHARP called attention to a large land Planarian, which had been given to him by Dr. Emily Hunt, who had obtained it from a green-house at Lansdowne, Pa.

The land Planarians, according to most authorities, are carnivorous and nocturnal. The reproduction of Planarians by division or fission had been known since the publication of Dalyell's valuable researches in 1814,[1] but as far as the speaker was informed, it had never been observed in land Planarians. In the specimen in his possession, a portion of the posterior end of the animal became detached at two different times. These pieces are still living and active, one being ten days and the other two weeks old.

The mouth in the land Planarians, as is the case with most of the forms, is situated near the middle of the body and opening on its under surface. One species of *Bipalium*, named by Schmarda[2] *Sphirocephalus dendrophilus*, presents a remarkable form of nerve system widely differing in complexity and arrangement from that of any other known Planarian. In the expanded or lobed anterior portion of the body (the so-called head) is situated a nerve ring closely resembling the œsophageal ring of the higher worms, and from this pass posteriorly two nerve-trunks joined by commissures or ganglia (?), strongly suggesting the segmented arrangement of the nerve system of the Annelids.

This form of nerve system suggests two very interesting questions: Are the land Planarians *progressing* toward a segmented type, or are they *degenerations* from such a type? The fact that the complete œsophageal ring does not surround the œsophagus and that the mouth is situated some distance posterior to it, would lead to the supposition that the present mouth is not the primitive one and that the œsophageal ring indicates where that primitive mouth once existed. The speaker was inclined to believe that this form of nerve system indicated rather a degeneration from a higher type than an evolution toward a more complex one.

He inclined to believe that the specimen under consideration represents a new species of the genus *Bipalium.* When in the extended condition it measured nine and a half inches; before the loss of its posterior end it was probably ten or eleven inches in length. In breadth, in its extended condition, it measured one-seventh of an inch; in thickness about one-tenth of an inch. The expanded head was roughly semicircular, measuring one-fourth of an inch across and one-fifth of an inch in length, i. e. from what might be called the neck to the anterior margin. As far as discoverable by means of a hand-lens no eye-spots or ocelli could be detected, but these may exist and if so, will be revealed by sections when examined under a higher power.

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[1] J. G. Dalyell. Observations on some interesting Phenomena in Animal Physiology, exhibited by several species of Planariae. Edinburgh, 1814.

[2] L. K. Schmarda. Neue wirbellose Thiere, beobachtet und gesammelt auf einer Reise um die Erde. Band I. Neue Turbellarien, Rotorien und Anneliden. Erste Haelfte. Leipzig, 1861. Pages 36 and 37, Plate VIII, fig. 83.

The tail is rounded and not pointed, as in most of the species of this genus; the body in the extended condition, does not taper but holds the same breadth and thickness from the neck to the end of the tail. The ground color of the animal is grayish-yellow, which is traversed by five longitudinal black bands, the central one being the broadest and those at each side of this quite faint. The external bands are marginal from the neck some distance backward, whence they run inside the margin to the tail where they join. The two pairs of lateral bands coalesce at the region of the neck and none of the bands are extended into the expanded head which differs from the rest of the animal in being of a grayish color.

Stimpson's[1] species, *B. virgatum* from Loo Choo, seems to be most nearly related to this supposed new species. The colors, however, differ, the median band passes into the head and the margins of the head and neck are thickly set with ocelli. This species is small, measuring only two inches in length.

The name BIPALIUM MANUBRIATUM was proposed for the new species of which an anatomical description and figures will probably be published at a later date.

Note on the Boring Sponge of the Oyster.—PROF. LEIDY remarked that in a recent letter received from Mr. H. J. Carter, of England, the able authority on the Porifera, he had directed his attention to a catalogue of sponges collected by Mr. Willcox on the coast of Florida published in our Proceedings, 1884, p. 202, in which he indicates the usual massive, solid form of *Raphyrus Griffithsii*, Bk., as the boring sponge of the oyster *Cliona celata*, and further points out a branched tubular variety, the same as that described later by Prof. Leidy as *Cliona phalica*, under the name of " *ramotubulata*."

In a recent " Report on the Porifera," by R. Hanitsch, of Liverpool, received from the author, he agrees with the speaker and Mr. Carter, that the boring sponge of the oyster, both of our shores and those of Europe, and the massive forms, represented by the *Raphyrus Griffithsii* of Bowerbank, all belong to the one species, the *Cliona celata* of Grant.

FEBRUARY 24.

DR. DANIEL G. BRINTON in the chair.

Twenty-five persons present.

A paper entitled, "Echinoderms and Arthropods from Japan," by J. E. Ives, was presented for publication.

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[1] W. Stimpson. Prodromus descriptionis animalium evertebratorum quae in Expeditione ad Oceanum Pacificum Septentrionalem a Republica Federate missa, Johanne Rodgers duce, observavit et descripsit W. Stimpson. Proc. Acad. Nat. Sci. Philadelphia, 1857, p. 30.